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EXAMINER

MORILLO, JANEL COMBS

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/978,063

Applicant(s)

KASHIWAZAKI ET AL.

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-4 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 is/are allowed.
- 6) ☒ Claim(s) 2-4, 9-13, 15, 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/462,744.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The examiner was unable to find support in the original specification for minimum amount of Si stated in claim 12 of "3.1".

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-110232 optionally in view of JP'054.

JP 10-110232 teaches an aluminum alloy of composition comprising (in weight%): 0.2-3% Si and 0.2-3% Mg, one or more of: 0.01-0.5% Mn, 0.01-0.5% Cr, 0.01-0.5% Zr, 0.001-0.5%

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Ti, and one or more of: 0-2.5% Cu and 0-2% Zn, and up to 1% Fe, which overlaps the composition as presently claimed (see abstract, etc.).

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

Concerning claim 3, JP'232 teaches a process comprising melting, casting, homogenizing, cold rolling (see [0008], [0010]), solution heat treating, and cooling at a rate of  $>2^{\circ}\text{C/s}$  after solution heat treating (see [0018]). As stated above, it appears that the presently claimed "annealing" step is equivalent to the "solution treatment" step in the prior art (see Claim Interpretation section for details). JP'232 does not teach reducing by both hot and cold rolling. However, with regard to the process steps, it is well settled that a product-by-process claim defines a product, and that when the prior art discloses a product substantially the same as that being claimed, differing only in the manner by which it is made, the burden falls to applicant to show that any process steps associated therewith result in a product materially different from that disclosed in the prior art. See *In re Brown* (173 USPQ 685) and *In re Fessman* (180 USPQ 524).

Because applicant has not shown that the alloy product taught by JP'232 is materially different from the instant product by process, it is held that JP'232 has created a prima facie case of obviousness of the presently claimed invention.

Alternatively, JP'232 does teach that it is known in the art to form sheet products from ingot starting materials (instead of direct casting rolling thin sheets), followed by homogenizing, hot rolling, cold rolling, and solution heat treatment see [0003]. Likewise, JP'054 (who teaches

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the production of an Al-Si-Mg-Zn-Cu-Fe alloy sheet with a substantially similar alloy composition as presently claimed) teaches a process of obtaining an aluminum sheet by homogenizing, hot rolling, cold rolling  $\geq 50\%$ , and solution heat treating (see abstract, etc.). It would have been obvious to one of ordinary skill in the art to use the alloy taught by JP'232 in an ingot reduction practice (as taught by JP'054) including hot rolling and cold rolling at a high reduction ratio, followed by solution heat treating and cooling at a rate  $\geq 2^\circ\text{C/s}$  (as taught by JP'232), because JP'054 teaches a high strength corrosion resistant sheet can be accomplished by said high reduction hot and cold rolling process, and JP'232 teaches that said cooling rate is important in order to obtain a product with supersaturated intermetallic phases [0017].

Concerning dependent claim 4, JP'232 does not teach examples within the instant composition and with the presently claimed properties (bending property, impact energy). However, where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Because the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims (such as bending property, impact energy, etc.) are expected to be present. It is held that JP'232 has created a prima facie case of obviousness of the presently claimed invention.

5. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'232 in view of JP'054 and Komatsubara et al.

As stated above, JP'232 teaches a process comprising melting, casting, homogenizing, cold rolling  $\geq 70\%$  (see [0008], [0010]), solution heat treating, and cooling at a rate of  $>2^\circ\text{C/s}$

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after solution heat treating (see [0018]). As stated above, it appears that the presently claimed “annealing” step is equivalent to the “solution treatment” step in the prior art (see Claim Interpretation section in last action for details). JP’232 does not teach reducing by both hot and cold rolling, or a reduction of  $\geq 98\%$ .

JP’232 does teach that it is known in the art to form sheet products from ingot starting materials (instead of direct casting rolling thin sheets), followed by homogenizing, hot rolling, cold rolling, and solution heat treatment see [0003]. Likewise, JP’054 (who teaches the production of an Al-Si-Mg-Zn-Cu-Fe alloy sheet with a substantially similar alloy composition as presently claimed) teaches a process of obtaining an aluminum sheet by homogenizing, hot rolling, cold rolling  $\geq 50\%$ , and solution heat treating (see abstract, etc.). Sheet products obtained by the above mentioned ingot practice *can* undergo more reduction because the starting thickness is typically greater than sheets obtained by direct casting rolling (the examiner points out that (a) both methods are well known in the art, and (b) the alloy taught by JP’232, which overlaps the presently claimed alloying ranges, is clearly capable of being processed either way). It would have been obvious to one of ordinary skill in the art to use the alloy taught by JP’232 in an ingot reduction practice (as taught by JP’054) including hot rolling and cold rolling at a high reduction ratio, followed by solution heat treating and cooling at a rate  $\geq 2^\circ\text{C/s}$  (as taught by JP’232), because JP’054 teaches a high strength corrosion resistant sheet can be accomplished by said high reduction hot and cold rolling process, and JP’232 teaches that said cooling rate is important in order to obtain a product with supersaturated intermetallic phases [0017].

Concerning dependent claim 2, neither JP’232 nor JP’054 teach the use of recycled aluminum scrap. However, Komatsubara et al teaches that it is conventional in the art to produce

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similar Al-Si-Mg sheets from scrap material (column 8 lines 33-38). It would have been obvious to one of ordinary skill in the art to combine the teachings of JP'232, JP'054, and Komatsubara et al, that is, to make Al-Si-Mg sheets by the process and composition taught by JP'232 and JP'054 with recycled scrap, as taught by Komatsubara et al, because Komatsubara et al teaches it is common to make Al-Si-Mg alloy sheets out of recycled scrap (column 8 lines 33-38).

6. Claims 10-13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 58-031054 (JP'054).

JP'054 teaches an aluminum alloy of composition comprising (in weight%): 2.3-3.5% Si, 0.4-1% Mg, 0.05-0.5% Zn, 0.4-0.9% Mn, up to 0.3% Cu, up to 0.20% Cr, up to 0.1% Ti, up to 0.3% Fe (see abstract and Table on page 290), which overlaps the composition as presently claimed (claims 10, 12, 15). Additionally, 3.5% Si, the maximum amount of Si taught by JP'054, is a close approximation of 3.51% Si (minimum in instant claim 16), as well as 3.52% Si (minimum in instant claim 13). Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

JP'054 teaches substantially similar TS (as claimed in instant claims 10 and 11) can be achieved (see Table 3). The examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the

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PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Because of the overlap in alloying ranges, and because JP’054 teaches substantially similar tensile properties as presently claimed, JP’054 is held to create a prima facie case of obviousness of the presently claimed invention.

#### ***Allowable Subject Matter***

7. Claim 14 is allowable over the prior art of record. The following is an examiner’s statement of reasons for allowance: the prior art does not teach or suggest an aluminum alloy sheet material with the instant ranges of Si, Mg, Zn, Cu, Fe, Mn, and one or more of Cr, Ti, Zr, and V, substantially as presently claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

#### ***Response to Amendment/Arguments***

8. In the response filed on January 8, 2004, applicant canceled claims 5-7, and added claims 10-16.

Applicant’s argument that the present invention is allowable over the prior art of record because there is no motivation to cast an ingot, as taught by JP’054, the Al-Si alloy taught by



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JP'232 (who teaches casting a thin sheet), has not been found persuasive (see arguments page 8-9, 19-20). It is well known in the aluminum art that various methods can be used to form the starting materials for thin sheets- for example, by continuous casting slabs, continuous casting sheets, casting ingots, etc. It would have been obvious to cast the Al-Si alloy taught by JP'232 in a variety of conventional methods, including ingot casting (followed by conventional homogenizing and hot rolling reduction) as taught by JP'054, because said method is taught to be suitable for casting substantially similar Al-Si alloys (see also rejection above).

Applicant's argument that the present invention is allowable over the prior art of record because JP'232 teaches that certain process steps are necessary to achieve the desired microstructure (arguments page 10) has not been found persuasive. As stated above, ingot casting is a well known process step (see also rejection above), as taught by JP'054, etc. JP'054 clearly teaches that substantially similar Al-Si alloys are suitable for ingot casting. Additionally, with respect to the product by process claims, it is well settled that a product-by-process claim defines a product, and that when the prior art discloses a product substantially the same as that being claimed, differing only in the manner by which it is made, the burden falls to applicant to show that any process steps associated therewith result in a product materially different from that disclosed in the prior art. See MPEP 2113, *In re Brown* (173 USPQ 685) and *In re Fessman* (180 USPQ 524) *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Applicant's argument that the present invention is allowable over the prior art of record because "claim 10 is limited to an aluminum T4 tempered sheet" (arguments page 12 lines 19-20, also arguments p 13-14) has not been found persuasive. Instant claim 10 does not mention the limitation of a T4 temper. Furthermore, the prior art teaches a tensile strength within the

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limits listed in claims 10, 11, (see above rejection, JP'232). Additionally, the examiner disagrees that claim 11 is drawn to a particular temper- there is no temper limitation listed in instant claim 11 (arguments page 15). The table on page 16 of the response lists the comparisons between the alloy examples of JP'232 in a T4 temper compared to the instant invention in a T4 temper. Instant claims 10 and 11 are not limited to a TS in a certain temper, and JP'232 teaches a T6 temper TS within the instant limits.

The 37 CFR 1.132 declaration filed January 8, 2004 (see also arguments pages 20-23) is insufficient to overcome the rejection of claims 2-4 and 9-16 based upon JP'232 as set forth in the last Office action because: a) said results are not unexpected, and/or b) said results are not commensurate in scope with the instant claims.

Concerning item a), the comparison of a rolling reduction of 98% (X1 or Y1) and 96% (X2 or Y2) does not demonstrate unexpectedly superior results- the difference in TS, YS, elongation is not significant. There is no or little difference in min. electric current required when spot welding, occurrence of "No Good" in spot welding, and bending property. The largest difference is the charpy impact value, however this value increased 10% for X<sub>1</sub>:X<sub>2</sub>, and 2% for Y<sub>1</sub>:Y<sub>2</sub>. The examiner submits that no conclusion can be made from these results that the instant invention has unexpected results over the prior art.

Concerning item b), the unexpected results are not commensurate in scope with the claimed invention (see MPEP 716.02 d). Whether the unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, the "objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support." In other words, the showing of unexpected results must be reviewed to see if the

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results occur over the entire claimed range. *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980). To establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range. *In re Hill*, 284 F.2d 955, 128 USPQ 197 (CCPA 1960).

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

ROY KING   
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

  
Jcm  
April 7, 2004